

***Aristea ranomafana* Goldblatt,
a new species of *Iridaceae* from Madagascar**

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Summary : *Aristea ranomafana* is a new species of the Afro-Madagascan genus *Aristea* Aiton, restricted to a few open habitats in the Parc National de Ranomafana in east-central Madagascar. It appears to be most closely related to the fairly widespread Madagascan *A. kitchingii* Baker, but differs from it most notably in the repeatedly branched, compound inflorescence with three orders of branching, broad leaves 9-12 mm wide, and broad tepals, the outer whorl of which are 12 × 10 mm. In the critical rhipidial spathe and floral bract characters, capsule and seed size, and staminal features, including presence of porate anthers and zonosulculate pollen grains, *A. ranomafana* accords most closely with *A. kitchingii*.

Résumé : *Aristea ranomafana* est une espèce nouvelle du genre africano-malgache *Aristea* Aiton, confiné dans quelques milieux ouverts du Parc National de Ranomafana au centre-est de Madagascar. C'est de *A. kitchingii* Baker, l'espèce malgache la plus largement distribuée, qu'il paraît être le plus proche, mais il en diffère notablement par des inflorescences composées à ramification d'ordre 3, de grandes feuilles de 9 à 12 mm de large et de grands tépales, de 12 × 10 mm pour ceux du verticille externe. Par les caractères du spathe rhipidial et des bractées florales, la taille de la capsule et de la graine, et les caractères staminaux (incluant la présence d'anthers poricides et de grains de pollen zonosulculés), *A. ranomafana* est plus particulièrement proche de *A. kitchingii*.

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INTRODUCTION

Ample collections of a tall and very robust species of *Aristea* from the Parc National de Ranomafana in east-central Madagascar evidently represent a new species. *Aristea* is an Afro-Madagascan genus of some 50 species (WEIMARCK, 1940 ; VINCENT, 1985 ; GOLDBLATT, 1991), one of six genera currently assigned to subfamily *Nivenioideae* of *Iridaceae* (GOLDBLATT, 1990). There are six species of *Aristea* currently recognized from Madagascar, all endemic there, and assigned to two sections, *Eucapsulares* Goldblatt (= *Euaristea* Weimarck) and *Cladocarpae* Weimarck (PERRIER, 1946 ; GOLDBLATT, 1991). The new species, *A. ranomafana*, belongs in section *Eucapsulares*, in which it appears to be most closely related to the fairly widespread

A. kitchingii Baker. The latter is a fairly well-known species of the central Madagascan plateau, where it extends from Ankazobe in the north to the mountains north of Ambositra in the south (Fig. 1). *Aristea ranomafana* can be distinguished from *A. kitchingii* by the broader leaves, 9-12 mm wide, a repeatedly branched inflorescence with 3 orders of branching, and flexuose secondary and tertiary branch axes. *Aristea kitchingii* (GOLDBLATT, 1991) has leaves 5-8 mm wide (exceptionally to 11 mm in *Decary 17501* from Ambatohindrahao), and either an unbranched inflorescence, or one with one order of lateral branches, and the main and secondary branch axes are straight. The flowers of *A. ranomafana* also appear to have broader tepals than those of *A. kitchingii*; the outer tepals are ca. 12 mm long and 10 mm wide in the new species (measurements made from spirit material) versus 11-14 mm long and ca. 4 mm wide in *A. kitchingii*. Unfortunately, there is no spirit material of the latter available, so that the floral dimensions of *A. kitchingii* have been determined only from dry material, which is prone to distortion and shrinkage. The stamens, capsules and seeds appear to correspond closely in the two species.

The most remarkable aspect of *Aristea ranomafana* is the hyperbranched pseudopaniculate inflorescence (Fig. 1), a feature found in one other species of *Aristea*, *A. humbertii* H. Perrier, a local endemic of the Andringitra Massif in southeastern Madagascar. In *A. humbertii*, the pseudopanicule has one or two orders of branching, is fewer-branched and the inflorescence has a more open appearance. *Aristea humbertii* can also be distinguished by the very narrow spathes and floral bracts, and the unusually long pedicels of the flowers and capsules, quite unlike the short pedicels of most species of *Aristea*, including the *A. ranomafana* and *A. kitchingii* (GOLDBLATT, 1991).

Pollen grains of *Aristea ranomafana*, examined in the course of a separate study of pollen grain types in *Aristea* (GOLDBLATT & LE THOMAS, in prep.), are spherical, ca. $40 \times 35 \mu\text{m}$ in size, have a zonasulcate aperture covered with disorganized exine masses, and rugulose exine. They thus closely resemble the grains of *A. kitchingii* (GOLDBLATT & LE THOMAS, 1992). The grains of *A. humbertii* differ in having a monosulcate-pontoperculate aperture, but are otherwise similar, notably in the rugulose exine, characteristic of several species of *Aristea* in Madagascar.

TAXONOMY

Aristea ranomafana Goldblatt, *sp. nov.* — Fig 1.

Plantae 120-150 cm altae, foliis linearibus longitudine ca. dimidium caulis aequitantibus 9-12 mm latis, caule 2-angulatis infra, circa teretibus supra, multiramoso, inflorescentiis rhipidiis binatis, utroque rhipidio (1-)2-florum, floribus caeruleis, tepalis horizontaliter patentibus, exterioribus ca. 12×10 mm, obovato-truncatis, interioribus angustioribus, antheris 4.5-5 mm longis dehiscentibus ad apices, stylo obscure 3-lobato, capsulis ovato-oblongis 7-8 mm longis, seminibus primaticis.

TYPE : *Malcomber et al. 1336*, Madagascar, Parc National de Ranomafana, trail to Maharira, south of the Namorona River, 1100-1150 m, 10 March 1992 (holo-, TAN; iso-, K, MO, NBG, P).

Plants 120-150 cm high. Rootstock a thick rhizome, 9-14 mm in diameter. Leaves linear, about half as long as the stem, 9-12 mm wide, often reddish toward the base. Flowering stem more



Fig. 1. — *Aristea ranomafana*, base of plant, flowering stem and pseudopanicule and distribution of *A. ranomafana* (2), and related species, *A. kitchingii* (1) and *A. humbertii* (3). Drawn by J. C. MANNING.

less compressed and 2-angled below, more or less terete above the leaves, branched repeatedly in the upper third, giving rise to a pseudopanicule with 3 orders of branching, the branching more or less dichotomous ; branches subtended by small bracts 2-3 mm long, and the axils sometimes with 1-2 flowers, the final order branches either one internode long and bearing a single terminal flower cluster (a binate rhipidium), or 2-3 internodes long and with a sessile flower cluster at each node.

Inflorescence consisting of binate rhipidial units, each rhipidium of the pair bearing (1-)2 flowers, binate rhipidium (2-)4-flowered ; binate rhipidia numerous and forming a pseudopanicule ; rhipidial spathes green, 3-4 mm long, emarginate to deeply forked in the midline ; floral bracts 4-5 mm long, those of the first flower 2-keeled, those of the second flower 1-keeled, the keels probably brownish and becoming dry at anthesis. Flowers actinomorphic, deep blue, the anthers bright yellow ; tepals united basally for ca. 1 mm, spreading horizontally when fully open, the outer three tepals ca. $12 \times$ ca. 10 mm, obovoid, emarginate, the inner three tepals about as long, but slightly narrower and more or less ovate. Filaments free, ca. 2 mm long ; anthers 4.5-5 mm long, basifixed, dehiscent only towards the upper 0.5 mm, thus more or less poricidal. Ovary ovoid-truncate, ca. 3.5 mm long at anthesis, more or less sessile, reaching to about the apex of the floral bracts ; style obscurely 3-angled, evidently ca. 7.5 mm long, barely exceeding the anthers.

Capsules oblong, 7-8 mm long, borne on pedicels 1-1.5 mm long, capped by the remains of the flower until maturity ; seeds prismatic, strongly angular, dark brown, ca. 1.5×1 mm.

OTHER MATERIAL STUDIED : *Malcomber, Hemingway & Randriamentena 2410*, Madagascar, Parc National de Ranomafana, southeast of Savondranona, Maharira, 1200-1400 m, 21-23 April 1993 (B, BR, EA, K, MO, P, S, TAN, WAG).

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